

kindly lent 29 skins from the mountains of the eastern Congo and a male from Mt. Elgon. This series shows that the northernmost birds tend to have the under parts a little brighter (with more yellow pigment) than the more southern birds. There is also a slight tendency for the northern birds to be smaller than the southern, and especially shorter in the tail: males from Elgon and Kakamega have wings 81, 82; tails 74, 74; from Wago, west of L. Albert, wing 75; tail 78; from Lutunguru, west of L. Edward, wings 78, 80, 80, 84; tails 75, 78, 82, 80; while males from the southernmost locality, Kabobo Mt., at about 5° S, west of Lake Tanganyika, have wings 84, 84, 84; tails 79, 81, 83. The biggest male of the whole series, from Masango, about 120 miles north of Kabobo, has wing 85; tail 82 mm.

The two Kungwe males have measurements outside the range of the foregoing series, wings 91, 93; tails 89, 86, while the Matali female, whose wings cannot be measured, has tail 83, compared with 72–81 in the 9 Congo females available. Provisionally therefore, the name *kungwensis* is retained, on the character of larger size, for the population isolated on the east side of Lake Tanganyika, which will now be known as *Andropadus masukuensis kungwensis*.

In the course of studying this species, specimens were borrowed also from the Museum of Comparative Zoology, Harvard, through the kindness of Dr. Raymond Paynter, in order to ascertain the ranges in southern Tanganyika of the green-headed, green-throated *A. m. masukuensis*, the type locality of which is the Masuku Mts. of Nyasaland, just south of the Tanganyika border, and the green-headed grey-throated *A. m. roehli*, the type locality of which is in the West Usambara Mts., about 500 miles away in the north-east of Tanganyika. Specimens from the Uzungwe, Ukinga and Rungwe Mts. had all previously been identified as *masukuensis* (Bangs & Loveridge 1933: 187).

We found that true *masukuensis* is confined to the Masuku Mts. Birds from Rungwe, about 45 miles to the north-east and separated by low ground, are very close to *masukuensis*, but show some approach to *roehli*. Those from the Ukinga Mts. which begin only 25 miles south-east of Rungwe and are connected with this mountain by ground over 6,000 ft., are also intermediate but closer to *roehli*, while those from the Songea district to the south as well as those from Uzungwe to the north can be regarded as *A. m. roehli*.

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The African subspecies of the Great Crested Grebe

by C. W. BENSON AND M. P. STUART IRWIN

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Podiceps cristatus infuscatus Salvadori, type-locality Lake Kilole, southern Abyssinia, has been shown by Benson & Irwin (1963) to have a markedly discontinuous distribution in eastern and southern Africa, restricted to waters at higher elevations. In the Main Gamblian wet phase ending some 12,000 years ago (Clark, 1962), when conditions were

presumably also colder, so that it could have existed at lower elevations than in the present, its distribution may have been more continuous. The present study was prompted by a desire to ascertain whether the populations of eastern and southern Africa, between which there is a gap extending from extreme north-eastern Northern Rhodesia to the Transvaal, differed in any way.

Thanks to the following institutions and individuals we have had the loan of material of the palaeartic *P. c. cristatus* (Linnaeus) and of *infuscatus* from:— the British Museum (J. D. Macdonald and Mrs. B. P. Hall), the Transvaal Museum (O. P. M. Prozesky), the Durban Museum (P. A. Clancey) and the South African Museum (J. M. Winterbottom). In addition, in the National Museum, Bulawayo, there were already available two eastern African specimens, to which five more have been donated from the Coryndon Museum, Nairobi, thanks to J. G. Williams, and two palaeartic specimens from the Zoologisch Museum, Amsterdam, thanks to K. H. Voous. In all, nine specimens of *cristatus* from England, Holland and Rumania (six in summer dress, three in winter dress) have been available; likewise 15 of *infuscatus* from the Cape Province, Natal and the Transvaal, and eight from Abercorn, north-eastern Northern Rhodesia north to Abyssinia. All the specimens of *infuscatus* are in summer dress except for one from Salisbury Island, near Durban, Natal, 7th July, 1959 (Durban Mus. No. 397). It was found oiled, and was probably an off-season migrant. Possibly, like *cristatus*, *infuscatus* in the southern sector of its range does have an off-season dress. This Durban specimen is marked (in Clancey's writing) as adult, and we see no reason to differ from this opinion. Other dated southern African specimens, in summer dress, are for the following months:— March (one), May (one), August (three), September (three), November (one), December (three). Attention is drawn to this Durban specimen because according to Jackson & Sclater (1938) in Kenya and Uganda adults do not appear to lose the ruff at any time. Chapin (1932) quotes van Someren to the same effect.

The colour differences between *cristatus* and *infuscatus* have been described by Grant (1915), *infuscatus* in particular lacking the white superciliary present in *cristatus*. Indeed some specimens of *infuscatus* tend to have the lores black or even completely so. Grant also found the upper parts and flanks to be darker in *infuscatus*. This is not so well marked a character, several southern African specimens being no darker than European, though the eight eastern African specimens are all quite decidedly blackish. Six of them were collected as recently as 1959 or later, but the difference cannot be due to *post mortem* changes, because the single Abyssinian specimen examined, from Lake Ashangi, collected as long ago as 1868, is no less dark and blackish. Witherby *et al.* (4, 93, 1943) give as a further character that *infuscatus* has the chestnut of the "tippet" more yellowish, but this we cannot uphold.

Considering possible differences between southern and eastern African specimens, the majority of the former are certainly paler on the upper side and flanks. Also, excepting the Abyssinian specimen, five from Lake Naivasha, one from Lake Basotu, northern Tanganyika and one from Abercorn have little intervening chestnut between the white of the throat and the black of the "tippet", the southern African specimens (and those of *cristatus*) having more extensive chestnut. There is possibly also some

difference in the colour of the bill. In three southern African specimens it was recorded by the collector as mainly reddish-brown; in the specimen in winter dress from Durban as deep shell pink, culmen dusky, but in four from Lake Naivasha as follows:— dark blackish-horn tinged red, lower mandible paler; blackish-horn, tinged red on lower mandible; reddish-brown, paler on lower mandible; dark horn with reddish tinge, paler on lower mandible. In the specimen from Lake Basotu it is recorded as dull reddy brown. The eastern African specimens do seem to us even now to have darker bills than the southern African, and indeed than the European. Witherby *et al.* (4, 1943) give the bill in adults of *cristatus* as carmine with culmen dark horn-brown. However, none of these three characters is sufficiently constant or clearly defined to warrant formal separation of the eastern African population by name.

Measurements in mm. of the material examined are as follows:—

	Wing	Europe	Culmen from base
5 ♂♂	187, 189, 189, 190, 191		56, 58, 62, 62, 64
3 ♀♀	179, 179, 182		52, 55, 58
1 ♂	190		60
		Eastern Africa	
5 ♂♂	179, 181, 182, 185, 190		56, 57, 59, 59, 64
3 ♀♀	174, 178, 180		52, 54, 56
		Southern Africa	
5 ♂♂	173, 176, 179, 179, 181		54, 58, 60, 61, 62
7 ♀♀	162, 166, 174, 174, 174, 177, 180		52, 54, 54, 56, 56, 58
3 ♂♂	178, 179, 189		53, 62, 62

In addition, Mrs. B. P. Hall has kindly given us the wing measurements for further specimens in the British Museum:— (a) Eastern Africa (Kenya and Uganda), 3 ♂♂, 179, 183, 189; 2 ♀♀, 172, 185 mm. (b) Southern Africa, 1 ♀, 175; 1 ♂, 175 mm.

Thus, regardless of sex and considering the figures in Witherby *et al.* (4, 1943) for European birds, the extremes of wing-lengths are as follows:—

Europe: 175–195.

Eastern Africa: 172–190.

Southern Africa: 162–189.

There is considerable overlap between the three series of specimens measured by us, though the averages, including Mrs. Hall's figures, work out respectively at 186.2, 181.3 and 175.9, the European being the largest, the southern African the smallest. The unsexed southern African specimen with wing 189 mm. is outstandingly large. The measurement has been re-checked and is correct. Those of the two very small southern African specimens, wing 162, 166 mm., have also been re-checked. Nor can we find any evidence that they are in moult. The culmen-lengths show no significant difference at all, the averages working out respectively at 58.5, 57.1 and 57.3, the European figure being slightly the largest.

To conclude, if isolation between the eastern and southern African populations continues, it might be that in another 10,000 years the latter would be worthy of a subspecific name.

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Intestinal caeca in the South African Columbidae

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Intestinal caeca are to be found in some columbid species but are absent in many others. The specific variation shown by the Columbidae with regard to the presence or absence of these diverticula would appear to be of special interest in view of the fact that the majority of avian families do not exhibit the same inconstancy.

If the Green Pigeon *Treron calva* (Temminck & Knip) is placed in a family distinct from the Columbidae, 12 South African species (6 genera) belonging to the latter category are currently recognised. A number of specimens of each of the following species have been dissected: Rock Pigeon *Columba guinea* Linnaeus, Cape Turtle Dove *Streptopelia capicola* (Sundevall), Laughing Dove *Streptopelia senegalensis* (Linnaeus), Namaqua Dove *Oena capensis* (Linnaeus) and Emerald-spotted Wood Dove *Turtur chalcospilos* (Wagler). Intestinal caeca are absent in *O. capensis* and *T. chalcospilos* but are present in *C. guinea*, *S. capicola* and *S. senegalensis*. They are also present in the Red-eyed Turtle Dove *Streptopelia semitorquata* (Rüppell) (Verheyen, 1957: 9).

Existing information for certain other South African representatives does not appear to be altogether satisfactory and data on those not listed above are either inadequate or lacking and should, where possible, be based on the examination of more than one bird, in view of the fact that the presence in this family of a single intestinal diverticulum as an intraspecific variation is not unknown (Beddard, 1898: 308; Mitchell, 1901: 239). There is reasonable evidence that caeca are absent in the Blue-spotted Wood Dove *Turtur afer* (Linnaeus) but confirmation would be useful. In the case of the Rameron Pigeon *Columba arquatrix* Temminck & Knip, careful examination of the wall of the gut in the area of junction between the ileum and rectum should be made, if possible, in the case of fresh specimens rather than those which have been placed in a preservative.

One hesitates to say whether or not the caeca are of any systematic importance as taxonomic value cannot be assessed independently of adaptive significance. Whatever their function may have been in the past, the present role of the vestigial intestinal caeca in the Columbidae is probably nothing more than lymphatic.

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